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STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			BATTAGLIA, MICHAEL V	
			ART UNIT	PAPER NUMBER
			2652	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/609,822

Applicant(s)

SEO ET AL.

Examiner

Michael V. Battaglia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-26, 28-46 and 48-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-24, 30, 38, 42 and 55-58 is/are allowed.
- 6) ☒ Claim(s) 19, 20, 25, 26, 29, 34-37, 43, 48-50, 53 and 54 is/are rejected.
- 7) ☒ Claim(s) 28, 32, 33, 39-41, 44-46, 51 and 52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2000 and 23 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### ***Drawings***

1. The drawings are objected to because “SPACE MARK” in the center column header of Fig. 7 should be replaced with “TRAILING SPACE”.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 19, 20, 28, 31, 33-35 and 48 are objected to because of the following informalities:
  - a. On line 10 of claim 19, replacing “spaces” with –space-- is suggested.

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- b. On line 4 of claim 20 and line 3 of claims 28 and 31, replacing “the write pulse” with -- the write pulse waveform-- is suggested.
- c. On line 7 of claim 33, replacing “a the” with –the-- is suggested.
- d. On lines 7-8 of claim 33, replacing “a magnitude of the magnitude” with –the magnitude-- is suggested.
- e. On line 8 of claim 33, replacing “magnitude for” with –magnitude of-- is suggested.
- f. On line 7 of claim 33, replacing “the second pulse” with –the last pulse-- is suggested to avoid improper antecedent basis issues.
- g. On line 8 of claim 33, replacing “magnitude for” with –magnitude of-- is suggested.
- h. On line 6 of claim 34, line 8 of claim 35, and line 11 of claim 48, replacing “groups grouped” with –groups-- is suggested to remove redundancy and clarify the claims.

Appropriate correction is required.

- 3. Claim 31 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 31 is improperly dependent on claim 19 because it does not contain all of the limitations of claim 19. Specifically, claim 19 includes the limitation that the “write pulse waveform is generated without regard for a trailing space of the present mark” and

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claim 31 includes the limitation of “varying a falling edge of the last pulse of the write pulse waveform in accordance with the magnitude of the trailing space”.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19, 20, 25, 26, 29, 34, 35, 43, 48-50, 53 and 54 are rejected under 35

U.S.C. 102(b) as being anticipated by Ide et al (hereafter Ide) (US 5,418,770).

In regard to claim 19, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a discriminator (Fig. 3, element 21 and Fig. 14, elements 1001-1006, 1018 and 1019) to discriminate a magnitude of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and a magnitude of a leading space (Figs. 15, 16A and 16B, element  $bi-1+Ei-1-Fi$ ) of the present mark (Col. 7, lines 53-58 and Col. 12, line 19-Col. 13, line 10); a generator (Fig. 3, elements 18 and 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to control generation of a write pulse waveform determined in accordance with one or more grouping tables (Fig. 3, element 19 and Fig. 14, elements 19-1 and 19-2) and the discriminated magnitudes of the present mark and the leading space (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 13, lines 11-30), the one or more grouping tables storing width data of first and/or

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last pulses for the write pulse waveform to be generated varying according to the different stored magnitudes of the present mark of the input data and the leading space such that the generated write pulse waveform is generated without regard for a trailing space of the present mark (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 12, line 19-Col. 13, line 30); and a driver (Fig. 3, element 12) to drive a light source (Fig. 3, element 3) by converting the write pulse waveform into a current signal in accordance with driving power levels for the write pulse waveform controlled by the generator (Fig. 15 and Col. 7, lines 59-66). It is noted that the grouping tables group width data according to magnitude of the preceding mark, magnitude of leading space, and magnitude of present mark (Figs. 16A and 16B). For instance, width data for a particular magnitude of the preceding mark is grouped into a group represented by a two-dimensional plane as shown in Fig. 16A.

In regard to claim 20, Ide discloses that the generator includes: a write waveform controller (Fig. 3, element 18) to generate pulse width data to vary a width of the first and last pulses of the write pulse in accordance with the magnitude of the leading space and the magnitude of the present mark (Fig. 15 and note that the first and last pulses of the write pulse waveform are the same pulse); and a write pulse generator (Fig. 3, element 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to generate the write pulse waveform in accordance with the pulse width data (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 13, lines 11-30).

In regard to claim 25, Ide discloses that light power for a predetermined one of channels of the adaptive write pulse that is applied during a period corresponding to a varied width of the first pulse and during a period corresponding to a varied width of the last pulse (Fig. 15 and note that the first and last pulses of the write pulse waveform are the same pulse).

In regard to claim 26, Ide discloses that light power for the predetermined channel that is a read power or a write power (Col. 7, lines 62-66).

In regard to claim 29, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a discriminator (Fig. 3, element 21 and Fig. 14, elements 1001-1006, 1018 and 1019) to discriminate a magnitude of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and magnitudes of **leading** and/or trailing spaces (Figs. 15, 16A and 16B, element  $bi-1+Ei-1-Fi$ ) of the present mark (Col. 7, lines 53-58 and Col. 12, line 19-Col. 13, line 10); a generator (Fig. 3, element 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to control generation of a write pulse waveform in accordance with one or more grouping tables (Fig. 3, element 19 and Fig. 14, elements 19-1 and 19-2) having width data of first and/or last pulses for the write pulse waveform according to the magnitude of the present mark of the input data and the magnitudes of the leading and/or trailing spaces (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 12, line 19-Col. 13, line 30); and a driver (Fig. 3, element 12) to drive a light source (Fig. 3, element 3) by converting the write pulse waveform into a current signal in accordance with driving power levels for the write pulse waveform (Fig. 15 and Col. 7, lines 59-66), wherein the generator generates pulse width data by varying a falling edge of the first pulse of the write pulse in accordance with the magnitude of the leading space and the magnitude of the present mark (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 13, lines 11-30). It is noted that the grouping tables group width data according to magnitude of the preceding mark, magnitude of leading space, and magnitude of present mark (Figs. 16A and 16B). For instance,

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width data for a particular magnitude of the preceding mark is grouped into a group represented by a two-dimensional plane as shown in Fig. 16A.

In regard to claim 34, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a generator (Fig. 3, element 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to generate an adaptive write pulse using a grouping table (Fig. 3, element 19 and Fig. 14, elements 19-1 and 19-2) having width data (Fig. 16B, element  $li+Fi-Ei$ ) for a pulse of a write pulse waveform according to a magnitude of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and a magnitude of a leading space (Figs. 15, 16A and 16B, element  $bi-1+Ei-1-Fi$ ) of the present mark (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 13, lines 11-30) by grouping the magnitudes of the present mark and the leading space into corresponding pulse groups according to magnitudes (Note that magnitudes of the present mark and the leading space are grouped into corresponding pulse groups (two-dimensional plane shown in Fig. 16A corresponding to each magnitude of preceding marks (Figs. 15 and 16A, element  $li-1+Fi-1-Ei-1$ )) according to the magnitudes of preceding marks); and a processor (Fig. 3, element 20) to process data on a recording medium (Fig. 3, element 1), wherein the width data comprises rising edge information of the pulse (Fig. 16B, element  $Fi$  and Col. 13, lines 18-30).

In regard to claim 35, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a generator (Fig. 3, element 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to generate an adaptive write pulse using one or more grouping tables (Fig. 3, element 19 and Fig. 14, elements



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19-1 and 19-2), the one or more grouping tables storing width data (Fig. 16B, element  $li+Fi-Ei$ ) of widths of corresponding stored magnitudes of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and stored magnitudes of a corresponding space adjacent the present mark (Figs. 15, 16A and 16B, element  $bi-1+Ei-1-Fi$ ) by grouping the magnitudes of the present mark and the adjacent space into corresponding pulse groups according to magnitudes (Note that magnitudes of the present mark and the leading space are grouped into corresponding pulse groups (two-dimensional plane shown in Fig. 16A corresponding to each magnitude of preceding marks (Figs. 15 and 16A, element  $li-1+Fi-1-Ei-1$ ) according to the magnitudes of preceding marks); and a processor (Fig. 3, elements 4-6) to process data on a recording medium (Fig. 3, element 1) using the generated adaptive write pulse (Fig. 15, element Read-Out Signal).

In regard to claim 43, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a generator (Fig. 3, element 21 and Fig. 14, elements 1007, 1008, and 1010-1015) to generate an adaptive write pulse comprising a pulse (Fig. 15, element  $li+Fi-Ei$ ) with a variable pulse width, with the pulse width being varied according to a magnitude of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and a magnitude of a leading space (Figs. 15, 16A and 16B, element  $bi-1+Ei-1-Fi$ ) of the present mark without regard for a magnitude of a trailing space of the present mark (Figs. 15, 16A and 16B; Col. 7, lines 53-58;

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and Col. 12, line 19-Col. 13, line 30); and a processor (Fig. 3, element 20) to process data on a recording medium (Fig. 3, element 1).

In regard to claim 48, Ide discloses a recording and/or reproducing apparatus (Fig. 3) recording and/or reproducing data on a recording medium (Fig. 3, element 1), comprising: a discriminator (Fig. 3, element 21 and Fig. 14, elements 1001-1006, 1018 and 1019) to discriminate a magnitude of a present mark (Figs. 15, 16A and 16B, element  $li+Fi$ ; note that the magnitude of the present mark is  $li+Fi$  and not  $li$  because the width of the leading space has already been corrected) of input data and a magnitude of a space (Figs. 15, 16A and 16B, element  $bi_{-1}+Ei_{-1}-Fi$ ) adjacent the present mark (Col. 7, lines 53-58 and Col. 12, line 19-Col. 13, line 10); a generator (Fig. 3, elements 19 and 21 and Fig. 14, elements 19-1, 19-2, 1007, 1008, and 1010-1015) to control generation of a write pulse waveform determined in accordance with one or more grouping tables (Fig. 3, element 19 and Fig. 14, elements 19-1 and 19-2) and the discriminated magnitudes of the present mark and the adjacent space (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 12, line 19-Col. 13, line 30), the generator comprising a memory (Fig. 3, element 19 and Fig. 14, elements 19-1 and 19-2) in which the pulse width data (Fig. 16B, element  $li+Fi-Ei$ ) of the first and/or last pulses for the write pulse waveform are stored (Fig. 16B), the one or more grouping tables storing width data (Fig. 16B, element  $li+Fi-Ei$ ) of first and/or last pulses for the write pulse waveform by grouping the magnitudes of the present mark and the space adjacent the present mark, into a plurality of pulse groups (Fig. 16A and 16B, group of width data containing all values of  $Adr. 1$  for a specific grouping or combination of  $Adr. 3$  and  $Adr. 2$ , which represent magnitudes of the present mark and the space adjacent the present mark respectively, and note that there are a plurality of specific groupings or

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combinations of Adr. 3 and Adr. 2) according to the magnitudes (Figs. 16A and 16B and note that each (Adr. 3, Adr. 2) coordinate or combination is a grouping of the magnitudes of the present mark (Adr. 3 or  $li+Fi$  of Figs. 15, 16A and 16B) and the space (Adr. 2 or  $bi_{-1}+Ei_{-1}-Fi$  of Figs. 15, 16A and 16B) adjacent the present mark and the magnitudes are grouped according to the magnitudes as required by the claim limitation); and a driver (Fig. 3, element 12) to drive a light source (Fig. 3, element 3) by converting the write pulse waveform into a current signal in accordance with driving power levels for the write pulse waveform controlled by the generator (Fig. 15 and Col. 7, lines 59-66).

In regard to claim 49, Ide discloses that the generator varies the width according to the magnitude of the present mark regardless of a magnitude of a trailing space of the present mark (Figs. 15, 16A and 16B; Col. 7, lines 53-58; and Col. 12, line 19-Col. 13, line 30).

In regard to claim 50, Ide discloses that the pulse groups comprise a short pulse group (Figs. 16A and 16B, Adr. 3 and Adr. 2 combination or grouping shown in the upper left-most corner of Fig. 16B, ie. grouping of Adr. 3 and Adr. 2 having the smallest value of Adr. 3 and the smallest value of Adr. 2) and another pulse group (Figs. 16A and 16B, any grouping or combination of Adr. 3 and Adr. 2 not having the smallest value of Adr. 3 and not having the smallest value of Adr. 2), each member of the other pulse group having magnitudes greater than each member of the short pulse group (Adr. 3 and Adr. 2 are the magnitudes of the present mark and trailing space of the present mark respectively and a group having an Adr. 3 and Adr. 2 that are not the smallest respectively possible will have magnitudes greater than the smallest possible magnitudes).

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In regard to claims 53 and 54, Ide discloses that the grouping tables comprise a short pulse group (Figs. 16A and 16B, ADR. 3 and ADR. 2 combination or grouping shown in the upper left-most corner of Fig. 16B, ie. grouping of ADR. 3 and ADR. 2 having the smallest value of ADR. 3 and the smallest value of ADR. 2) and another pulse group (Figs. 16A and 16B, any grouping or combination of ADR. 3 and ADR. 2 not having the smallest value of ADR. 3 and not having the smallest value of ADR. 2).

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ide in view of Furukawa in view of Hara (US 6,044,055).

In regard to claim 36, Ide discloses the recording and/or reproducing apparatus of claim 35. Furukawa does not disclose that the adaptive write pulse is different in respective zones on the recording medium.

Hara discloses adjusting pulse widths of first and/or last pulses of the write pulse waveform for respective zones on the optical recording medium (Col. 10, lines 43-46 and 65-67 and Col. 21, lines 13-18). Hara further discloses that the pulse widths are varied to compensate for variations in the edge positions of marks at different linear velocities corresponding to the different zones (Col. 7, lines 65-Col. 8, lines 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the adaptive write pulse of the recording and/or reproducing apparatus of Ide to be different in respective zones on the recording medium as suggested by Hara, the motivation being to compensate for variations in the edge positions of marks at different linear velocities in the different zones and therefor increase the signal to noise ratio.

6. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ide as applied to claim 35 above, and further in view of Nishiuchi et al (hereafter Nishiuchi) (US 5,568,461).

Ide discloses the recording and/or reproducing apparatus of claim 35 but does not disclose that the write pulse waveform is based on whether input data is in a land track or a groove track.

Nishiuchi discloses a recording and/or reproducing apparatus that optimizes write pulse waveforms for either a land track and a groove track (Col. 14, lines 7-13) and teaches that using recording signals optimized for writing on a land or a groove will reduce error that is generated when the same recording signal is used for both lands and a grooves (Col. 2, lines 35-39 and Col. 6, lines 36-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for write pulse waveform of the recording and/or reproducing apparatus of Ide to be optimized based on whether the input data is in a land track or a groove track as suggested by Nishiuchi, the motivation being to reduce error caused by writing to both land and groove tracks in the same manner.

*Allowable Subject Matter*

7. Claims 21-24, 30, 38, 42 and 55-58 are allowable over the prior art of record for the reasons specified in the previous Office actions.

8. Claim 28 would be allowable if rewritten to overcome the objections set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. None of the references of record alone or in combination suggest or fairly teach a recording and/or reproducing apparatus recording and/or reproducing data on a recording medium, comprising: a discriminator to discriminate a magnitude of a present mark of input data and a magnitude of a leading space of the present mark; a generator to control generation of a write pulse waveform determined in accordance with one or more grouping tables and the discriminated magnitudes of the present mark and the leading space, the one or more grouping tables storing width data of first and/or last pulses for the write pulse waveform to be generated varying according to the different stored magnitudes of the present mark of the input data and the leading space such that the generated **write pulse waveform is generated without regard for a trailing space of the present mark**; and a driver to drive a light source by converting the write pulse waveform into a current signal in accordance with driving power levels for the write pulse waveform controlled by the generator, and wherein the generator **generates pulse width data by varying a rising edge of the write pulse waveform in accordance with the magnitude of the leading space and the magnitude of the present mark**.

9. The indicated allowability of claim 29 is withdrawn in view of the newly discovered reference to Ide. Rejections based on the newly cited reference are made above.

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10. Claims 32, 33, 39, 40, 51 and 52 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

In regard to claim 32, none of the references of record alone or in combination suggest or fairly teach recording and/or reproducing apparatus recording and/or reproducing data on a recording medium, comprising: a generator to generate an adaptive write pulse, by **varying a rising edge of a first pulse of the write pulse and a second pulse of the write pulse in accordance with a magnitude of a space adjacent a present mark and a magnitude of the present mark**, based on at least **one table storing width data of the first and/or second pulses in a grouping format in which the magnitudes of the present mark and the adjacent space are grouped into corresponding pulse groups according to magnitudes**; and a driver to drive the light source according to the adaptive write pulse.

In regard to claim 33, none of the references of record alone or in combination suggest or fairly teach an adaptive write pulse generating circuit, the adaptive write pulse being used for writing input data to an optical recording medium, comprising: a write pulse inputting unit inputting a write pulse, the **write pulse including a first pulse, a last pulse and a multi-pulse train**; a generator generating the adaptive write pulse, by varying a rising edge of the first pulse in accordance with a magnitude of a leading space and a magnitude of a present mark **and varying the last pulse in accordance with the magnitude of the present mark without regard for a magnitude of a trailing space of the present mark**, based on at least **one table storing width data of the first and/or second pulses in a leading space and present mark grouping format**; and an outputting unit to output the generated adaptive write pulse.

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11. Claims 41 and 44-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 41 contains allowable subject matter for the previously specified reason.

In regard to claim 44, none of the references of record alone or in combination suggest or fairly teach a recording and/or reproducing apparatus recording and/or reproducing data on a recording medium, comprising: a generator to generate an adaptive write pulse comprising a pulse with a variable pulse width, with the pulse width being **varied** according to a magnitude of a present mark of input data and a magnitude of a leading space of the present mark **without regard for a magnitude of a trailing space of the present mark**; and a processor to process data on a recording medium; and wherein the **pulse width is varied by varying an edge placement of the pulse, including varying a rising edge placement of the pulse based on the magnitude of the present mark and the magnitude of the leading space of the present mark.**

### *Response to Arguments*

12. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571) 272-7568. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Battaglia



BRIAN E. MILLER  
PRIMARY EXAMINER